ON THE

Diseases Prevalent among Potters.

BY

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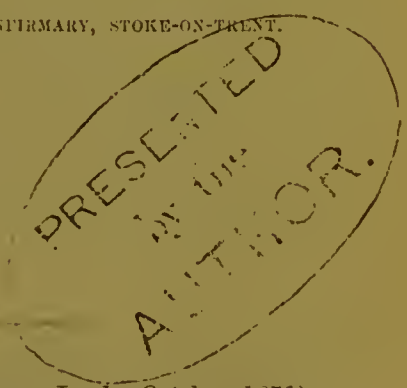

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DISEASES PREVALENT AMONG POTTERS.

A VERY short acquaintance with the state of health of the inhabitants of the pottery district of North Staffordshire will show that, as in the case also of other seats of manufacture, it is far from satisfactory; and further, that this state of things is due pre-eminently to the prevalence of pulmonary diseases, including consumption. These facts have arrested official notice, and on two occasions a physician has been sent into the locality from the medical department of the Privy Council to investigate them. They were, moreover, influential in determining the inquiry made some years since in the district by the Children's Employment Commission, which ended in the extension of the Factory Acts to the manufacture of earthenware and china.

For very nearly ten years I have been resident within the district; and as physician to the large North Staffordshire infirmary, as well as a factory medical officer for a considerable section of the pottery towns, I have had very large opportunities of observing the diseases most rife among potters, and the conditions of labour and mode of life common among them.

Some of the results of my observation I now propose to state, based upon written records, prepared for the purpose of supplying statistical information on various points connected with the medical history of the population. The records I now use are derived from out-patient medical practice at the infirmary; for I consider that this practice best exhibits the popular maladies of a district. Only cases strictly coming within the scope of a physician's practice are included; but no cases of fever—continued or eruptive, and very few instances of acute disease are among the number catalogued. Further, all the patients were above ten years of age, and of the whole number of 800 only 40 were under fourteen. Very few were above fifty.

The whole 800 were engaged in one or other department of the pottery manufacture. Of these 463 were males and 337 females. It must not be gathered from these figures that male out-door patients preponderated in number. On the contrary, female applicants for medical relief constitute from two-thirds to three-fourths of the entire number of out-patients. There is nothing peculiar in this circumstance, for the experience of the out-door department of hospitals is similar.

In the following tables I have arranged the diseases most prevalent, and stated the rate per cent. of each of them.

TABLE I.

POTTERS—MALES.

Bronchitis	= 36·57
Phthisis	= 20· 9
Rheumatic affections	= 7·79
Stomach disorders	= 8·44
Lead-poisoning	= 8·00
Cerebro-spinal diseases	= 4·32
Cardiac diseases	= 2·81
Epilepsy	= 1·73

TABLE II.

POTTERS—FEMALES.

Bronchitis	= 7·14
Phthisis	= 16·96
Rheumatic affections	= 4·46
Stomach disorders...	= 19·64
Lead-poisoning	= 5·06
Cerebro-spinal diseases	= 2·97
Cardiac diseases	= 2·08
Epilepsy	= 4·46
Chorea	= 2·08
Hysteria	= 1·49
Anæmia, with debility, &c.	= 10·41
Uterine maladies	= 18·15

It will be asked to what extent are these maladies prevalent among potters compared with other artizans. I subjoin the two following tables in elucidation of this inquiry:—

TABLE III.

NON-POTTERS—MALES.

Bronchitis	= 18·00
Phthisis	= 13·00
Rheumatic affections	= 21·00
Stomach disorders	= 19·00
Lead-poisoning	= 0·00
Cerebro-spinal diseases	= 5·00
Cardiac diseases	= 6·00
Epilepsy	= 5·00

TABLE IV.

NON-POTTERS—FEMALES.

Bronchitis	= 16·00
Phthisis	= 11·00
Rheumatic affections	= 1·00
Stomach disorders	= 31·00
Lead-poisoning	= 0·00
Cerebro-spinal diseases	= 2·00
Cardiac diseases	= 3·00
Epilepsy	= 7·00
Hysteria	= 5·00
Anæmia, with debility, &c.	= 10·00
Uterine maladies	= 13·00
Chorea	= 1·00

I must here observe that these figures, for operatives not engaged in the manufacture of pottery, are derived from a much smaller number of cases, namely, from a total of 100 males and of 100 females respectively; consequently the per-centages calculated for the less common diseases cannot be taken as exact representations of the rate of prevalence, although sufficient to exhibit relative proportions. For instance, the table of non-potters—females—shows only 1 per cent. of cases of rheumatism; this we may take, as in some measure, only accidental in the 100 cases that happen to have been collected; in fact, I believe the average to be somewhat higher, although I can, at the same time, admit the resultant figure to be accurately indicative of the comparatively less frequency of rheumatic affections in women not engaged in the manufactories of pottery than in those occupied therein.

There are several facts deducible from the foregoing tables, whose significance cannot be doubted. Foremost among these is the excessive prevalence of bronchitis and pulmonary consumption. This circumstance also appears as vividly from an examination of the tables of mortality in the district. Thus, I have shown in my essay "On the Mortality of Stoke-upon-Trent, and its Causes," that the ratio of deaths to the entire mortality of that parish, arising from diseases of the respiratory organs, is 30·80 per cent., that of England at large being 27·20 per cent., and, excluding the deaths of children under ten years old, the per-centage reached 41·51.

So if we make a calculation from the figures in the tables presented of maladies treated among out-patients, we arrive at a closely similar ratio of the prevalence of diseases of the respiratory organs, namely, 37·39 per cent. A less ratio certainly to that of the mortality from the maladies in question among adults; but, at the same time, this is a circumstance easily accounted for by the fact that the sufferers were out-patients, required to attend at the infirmary, at a more or less considerable distance from their homes, and consequently they represented a class still possessing a moderate share of physical power, the more advanced and weaker individuals being

detained in their homes, or else within the wards as in-patients. In the essay referred to I included under the term "diseases of the respiratory organs" cases of death arising both from diseases of the lungs and from phthisis, on account of the difficulties and uncertainties of diagnosis. It will be convenient generally to pursue the same course in this paper. The so-called potter's bronchitis or potter's consumption is, in by far the larger number of cases, a true consumption, partaking of a tubercular character.

What, it may be now inquired, are the assignable causes of this prevalence of diseases of the respiratory organs within the pottery district? Something may be put down against the climate and soil of the locality. These are not congenial. The climate is damp, and the soil generally a retentive clay, a condition which has been shown to be associated with the production of phthisis. These unfavourable conditions are in turn aggravated by those of man's making, namely, those arising from the processes of manufacture, from unhealthy shops and habitations, from defective sewerage and drainage, and from improper diet and vicious habits. I cannot, on the present occasion, enter into an account of these several causes operating prejudicially on the health of the inhabitants, but may be allowed to refer to two papers I have written, in which they are partially discussed, the one in the *British and Foreign Medico-Chirurgical Review* for July, 1864, the other in the second number of the *Food Journal*, in 1870.

To return to the lessons deducible from the tables already presented, it becomes at once evident how much more rife are diseases of the respiratory organs among male potters than among non-potters. The rate per cent. is 57 to 31 for males. In the case of females no such disparity is evident; indeed, as far as bronchitis itself is concerned, it appears considerably rarer among women employed in the pottery manufacture than among others, although pulmonary consumption is comparatively more common among them.

Some remarks in elucidation of these numerical results are desirable. The prevalence of lung diseases among potters is doubtless primarily due to their occupation, which involves the taking into the lungs more or less dust derived from the clay with which they work. This so-called clay is rather a silicious compound than a true clay. In the various processes it is submitted to, it becomes more or less dried, and particles of it get diffused through the air. The investigations of Dr. Headlam Greenhow have clearly shown how the inhaled dust is productive of lung disease, and from my own experience and examinations I can confirm his conclusions. Male potters are much more the victims of this dust inhalation than females employed in the pottery manufacture; inasmuch as most of the processes in which dust is liable to be thrown off from the clay are carried on by men and lads. A certain proportion of women and girls are engaged in the clay-departments, in turning the potter's wheel, in lathe-treading, in cleaning and scouring the ware. And the last-named process, namely, china-scouring, is particularly de-

structive of life, by the breathing of dust and the setting up of lung disease.

But the number so engaged represents but a small section of the females, who are for the most part occupied in the finishing departments of the manufacture, namely, in the printing-shops, in "transferring" and in "paper-cutting," in painting and enamelling on the glazed ware, in gilding and burnishing the gold, and in the warehouses. Before these processes are undertaken, the clay has been converted by fire into china or earthenware, as the case may be, and consequently is no longer in a condition to evolve dust. We do not, therefore, meet with the bronchitis or potters' asthma among women as in the case of the men engaged in pot-works. Indeed, the small ratio presented by bronchitis among female potters is remarkable, and the more so, when contrasted with that obtaining among women otherwise occupied. I would not insist much on the greater prevalence among the latter, for much fewer of such women come under observation, and the hundred cases collected would extend over a longer period and probably further into the time of year when bronchitis is more common, nevertheless, the figures are so decided in their teaching that we must allow them their due weight and seek an explanation. This is not a difficult task when we come to consider the surrounding circumstances of female potters as contrasted with those of females of otheroccupations. I have noted the non-exposure generally of the former to the special causes of bronchitis among the male potters; and we have further to take into account conditions of labour favourable to their escape from the ordinary causes of the disease, namely, their protection from cold, their comparatively small exposure to weather and out-door influences, and their generally comfortable state of living and clothing, all these particulars contrasting advantageously for them in comparison with the class of women not occupied in the pottery manufacture, represented by servants of an inferior class, housewives of the poor, laundresses and needy needlewomen, all such being more largely exposed to the ordinary causes of bronchitis, and, at the same time, not so well prepared to resist those causes, by clothing and food, as their better remunerated sister-workers in the pottery manufactories.

On the other hand, the greater prevalence of phthisis among female potters acquires, from the considerations detailed, greater significance. The ratio of the occurrence of this disease ranges within 4 per cent. of that observed among male potters, and 5 per cent. above that met with among female non-potters. Making due estimate of the conditions of labour and of the circumstances of life surrounding them, this fact therefore shows a high rate of the disease among them, and is indicative of the existence of a phthisical diathesis in larger proportion, and the connection of their employment therewith.

I will pass on now to make some observations upon the prevalence of rheumatic affections. The climate of the district is favourable to the production of such affections by its dampness and coldness; but

apart from the influence of this agent there obtain special conditions of manufacture conducive to their prevalence. In respect to these affections the potters present a very decided advantage over non-potters—that is among males. In both classes of labourers rheumatism is a prevalent malady, and experience proves that those most exposed to it are the workers about ovens and furnaces, and in coal-pits. Such operatives suffer by exposure to considerable heat, and to cold or cold currents of air acting simultaneously or very speedily and also forcibly upon an over-heated body.

In this district the proportion of males, non-potters, so exposed to sources of rheumatism is greater than that of the potters. The branches of the potters' art in which the workers are most prone to the alternations of heat and cold, are those connected with the firing of the ware in ovens and kilns. The non-potters subject to rheumatism are the colliers and the workers about iron furnaces and in foundries.

The very usual connection of rheumatism with heart-diseases explains, at the same time, the greater frequency of such diseases among non-potters than among potters.

The next enumerated maladies in the tables are those of the stomach and digestive organs. Under the head of stomach disorders I have included dyspepsia in all its forms and cases of chronic gastritis. Such a group is a very elastic one; and, in the case of females especially, could be greatly expanded by the introduction of many cases which figure as examples of anæmia and hysteria, and of not a few comprehended among uterine maladies; for in all such stomach derangement is more or less a feature.

However, taking the figures as they stand, the deduction is, that both males and females not engaged in the pottery manufacture are more prone to stomach disorders than potters themselves. The explanation of this fact with reference to males is not so obvious as in respect to females. But I may say generally, that the non-potters who apply for infirmary relief are both more over-fed, and, again, more under-fed than the potters. The over-fed are represented especially by the workers in iron, the puddlers and others, whose wages are out of all proportion to their intelligence, and who know no better way of expending it than in gluttony and debauchery. These men appear before the doctor to be relieved from the gastric results of their own evil courses. The colliers partake in the same habits, and keep the "week-end" by extra indulgence in eating and drinking, particularly in the latter; but their means for so doing are not so large as those of iron-workers, and probably the production of stomach disorders among them is not greater than among the potters.

Probably the largest number of dyspeptic males is derived from the under-fed and the ill-fed, represented by broken-down artizans, by dissipated tailors and shoemakers, by ill-paid town and country labourers, and by other unfortunates whose lot is want of work or inability for work, and, as a result, inadequate and unfit food.

That more stomach disorders are encountered among women not

employed in pottery work, is explicable from the fact that the majority of such women are derived from the ill and under-fed class of milliners, seamstresses, and housewives of poor or dissipated men, or widows in great poverty.

The next variety of bodily disorders enumerated in the tables is lead-poisoning. It will be seen that this happens only among potters, and the inference—the true one—at once forces itself upon the mind, that it must be due to some condition connected with their labour. This condition is found in the glaze used in giving the smooth, lasting surface to earthenware and china; and, to a small degree, in some other processes in which lead colours are used, the chief of which is what is termed "ground-laying." The men who use the glaze are called "dippers," because their work is to dip the ware in the fluid glaze. Their hands and wrists are, during their work, constantly wetted with the lead glaze, and their clothes and faces become more or less bespattered with it. The extent to which they suffer is largely dependent on their own care and cleanliness, but to a certain degree also upon personal proclivity to suffer; for it seems certain that the lead enters and affects the system much more in some workers than in others. One or more helpers, women or lads, are engaged by the dipper in taking the ware from him, and in wiping off superfluous glaze. Those likewise into whose hands the glazed ware comes,—the "glost placers"—are also frequently poisoned by the lead.

The poison acts variously in different people and at different times. It occasions colic, troublesome dyspepsia, cerebral derangement, and paralysis in many forms, and to a greater or less extent. This source of sickness must be regarded as, both absolutely and relatively, a preventible one. It is for chemists, in conjunction with practical potters, to discover another mode of glazing pottery, and it is in the power of the workers themselves largely to obviate the peril of their labour.

It would not be correct to represent non-potters as entirely exempt from lead-poisoning, for such among them as use the metal in a form capable of entering the system by absorption must necessarily be liable to it; as are, for instance, house-painters; but probably no members of a craft suffer in so large a proportion from it as do potters, except it be the men engaged in the manufacture of white lead. But few remarks are needed to bring to a conclusion this retrospect of the diseases included in the tables.

Both epilepsy and chorea are unusually prevalent in the population of the Staffordshire potteries. The pathology and etiology of epilepsy are obscure, and the cause of its frequent occurrence in the district in question cannot be satisfactorily accounted for. It is met with in early life, and often is consecutive upon infantile convulsions. These last we can frequently associate with the ill-feeding of infants, and with faulty constitution. Both bad feeding and bad constitutions are common among the inhabitants. Struma, in various forms, affects a considerable proportion; retarded and imperfect

development prevails extensively; and, with physically weak bodies, there are often associated ill-regulated, irritable, ill-furnished minds, craving for exhausting and unhealthy stimuli, too largely found in towns and in town life.

To habits of intoxication, and to other vicious courses on the part of parents, may often be referred the sickly, dwarfed, misshapen, strumous, and phthisical children, so numerous in our manufacturing towns, and from whose ranks their mortality is so largely swollen. To such habits, more, indeed, than to the processes of manufacture, and to such habits, in association with insufficiently nutritive food, particularly on the part of women of the operative classes (often not in consequence of inadequate means, but of the want of common sense and teaching in the selection and preparation of food), do we owe the manifest deterioration of the race in large centres of industry. Such degeneresceence is, to a certain extent, counteracted by the constant recruiting of the town population from the dwellers in the country. How considerable need be this immigration into towns from the country around is indicated by the prevalence of so much disease destructive of life, as shown in the tables above, and perhaps even more distinctly by the examination of the registers of the causes of death, and the deductions therefrom, exhibiting the heavy death-rate, and the early period of life at which operatives are cut off,—as exemplified in the statistics of the mortality of the chief pottery towns, published by me in the essay before alluded to.

How far soever the influence of a degraded physical frame and of constitutional taint be effective in the production of epilepsy, there can be no question of its giving origin to chorea. Many physicians, especially those in London, have represented chorea as intimately connected with rheumatism and heart disease; and no doubt these maladies frequently concur as cause and effect; but my experience proves that this relation is not nearly so frequent as supposed; and I reckon that in two-thirds of the cases no rheumatism acquired or inherited and no cardiac disease are to be found. The subjects of chorea are principally ill-nourished, weakly, scrofulous children, with irritable, ill-regulated, and, at times, over-wrought brains, and the surest cure is derived from in-door treatment in the infirmary, which implies good food and air, moral control and discipline, removal from causes of excitement and irritation in scolding or petting parents, and in annoying, quarrelsome brothers and sisters, with the use of baths, but very little physic. In other words the treatment shows that chorea is a result of debility, abnormal cerebral activity, and improper or unfit diet.

The prevalence of uterine disorders among weak women engaged in sedentary work, and to a great extent ill-fed, is a phenomenon common in every town, and not peculiar to the potteries.

Whilst on the head of stomach disorders I referred to their presence in connection with uterine derangements, and I will take this opportunity of remarking upon the lamentable amount of sickness consequent on the abuse of tea by women of the working classes.

Instead of using it simply as an occasional beverage, they make it a principal article of diet, and drink it, usually without milk or sugar, several times a day. At most meals bread and butter is the only solid accompaniment. In many cases, doubtless, poverty imposes on them a meagre diet; but even in such, the one alluded to might be advantageously replaced by other kinds of food not more expensive. But in many instances this defective diet is one of choice, and not of necessity, and the choice is determined often by ignorance and indolence—by ignorance of the simplest cooking processes, and by indolence suggesting a meal that gives the least trouble.

Bitter and strong is the agitation, at the present period, against beer and other intoxicating liquors as the root of all evils; but, in my opinion, there is room for agitation against tea-drinking as carried on in the way spoken of; for I am convinced that a deterioration of health among the working classes, and a lowered vitality in the rising generation, are consequences of the abuse of the beverage in question. Entertaining as I do these views, based on wide observation, I can in no degree sympathize with the politico-social party, who make what they call "a free-breakfast table" the goal of their reforming ambition. The surrender of revenue consequent on their success would be balanced by no increased good, either to the pockets or to the health of the classes for whose special benefit the scheme is urged.